REMARKS

Claims 1-4 and 5-14 are pending in the application. Claims 1-4, 7, 8 and 10 have been amended. Claim 5 was previously cancelled without prejudice or disclaimer. Claims 11-14 are newly added. Reconsideration of this application is respectfully requested.

Applicants appreciate the Examiner and The Examiner's supervisor participating in a telephone interview on February 24, 2009 with the inventors and their attorney. During the interview, the inventors explained their invention and the cited and applied references. The Examiners noted that the invention described by the inventors was not recited in claim 1. In particular, the Examiners noted that items recited in the preamble were not recited in the body of claim 1 and that the term "data" in paragraph (a) was not limited to "prediction data". The Examiners suggested that an amendment be filed.

The Office Action rejects claim 2 under 35 U.S.C. 102(b) as anticipated by U.S. Patent No. 6,310,921 to Yoshioka et al., hereafter Yoshioka.

This rejection is respectfully traversed. Claim 2 has been amended to recite:

"running a prediction process for a current frame of said predictively encoded data stream by:

    (d) generating a first selection signal which signals whether prediction data for said current frame resides in a primary memory in part or in whole, wherein said primary memory is dedicated to storage of prediction data".

Support for this recital is in the specification, for example, at page 8, line 7, to page 9, line 3.

The Examiner contends that Yoshioka's buffer 4 discloses this recital. In particular, the Examiner notes that buffer 4 corresponds to the recited primary memory. However, Yoshioka's buffer 4 is not involved in a predictive process. Buffer 4 is used to store input frames of a video signal, but does not store <u>predictive data</u>. Rather the predictive data resides in external memory 3 and is retrieved by pixel read/write unit 11, which performs the predictive process. There is no disclosure in Yoshioka that the predictive process generates a first selection signal that signals whether <u>the prediction data resides in a primary memory that is dedicated to the storage of prediction data</u> as recited.

Claim 2 further recites:

"if the first selection signal indicates that a portion of said prediction data or the whole of said prediction data for said current frame is not present in said primary memory:

iii. generating a second selection signal, based on an estimate of future needs of the prediction process, to signal that portion of said primary memory where said prediction data for said current frame, which is not already present in said primary memory, should reside, and

iv. transferring said prediction data for said current frame that is not already present in primary memory, from a secondary memory to that portion of said primary memory indicated by the second selection signal".

Support for this recital is in the specification, for example, at page 8, line 7, to page 9, line 3.

There is no disclosure in Yoshioka that if the prediction is not found in a primary memory, a second selection signal is generated, based on an estimate of future needs of the prediction process to signal where the prediction data should reside in the primary memory. Also, there is no disclosure in Yoshioka to transfer the prediction data from the external memory "to that portion of said primary memory indicated by the second selection signal", as recited.

It is clear that Yoshioka does not disclose either of the above quoted recitals separately or in combination. That is Yoshioka lacks both recitals. Therefore, claim 2 is not anticipated by Yoshioka.

For the reasons set forth above, it is submitted that the rejection of claim 2 under 35 U.S.C. 102(b) as anticipated by Yoshioka is obviated by the amendment and should be withdrawn.

The Office Action rejects claims 1, 3-7 and 10 under 35 U.S.C. 103(a) as unpatentable over U.S. Patent No. 5,675,387 to Hoogenboom et al., hereafter Hoogenboom in view of Yoshioka.

This rejection is respectfully traversed. Independent claims 1 and 8, which are directed to an encoding method and encoding system, have been amended to clarify that the encoding process takes into account the decoding process in order to reduce the power consumed by the decoding process.

Amended claim 1 recites:

(e)providing a primary memory model that emulates an operation of transferring and keeping a part of said reference data from said secondary memory to said primary memory in the decoding process.

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Support for this recital is in Fig. 4 and the specification at page 9, lines 26-29. Amended claim 8 contains a similar recital in apparatus format.

Hoogenboom does not even disclose an encoding process. Hoogenboom discloses a smart memory management scheme for a <u>video decoder</u> to avoid paying too much time while opening external memory pages. This has nothing to do with amended claims 1 and 8, which recite an encoding method and an encoding system. The Examiner concedes that Hoogenboom lacks the primary memory model, but contends that Yoshioka discloses this deficiency. However, Yoshioka not only fails to disclose a primary memory in his decoder, but also fails to disclose a primary memory model in the encoder described in columns 26-31. Therefore, the combination of Hoogenboom and Yoshioka lacks the recited primary memory model recited in amended claims 1 and 8.

Amended claim 1 further recites:

(f) finding at least one candidate that is a match between a current block of an input data sequence and said reference data located in said primary memory model.

Support for this recital is found in Fig. 4 and in the specification at page 10, lines 19-21. Claim 8 contains a similar recital in apparatus format.

Since the combination of Hoogenboom and Yoshioka lacks the recited primary memory model, it also lacks finding a candidate that is a match between a current block of an input data stream and reference data located in the primary memory as recited in amended claims 1 and 8.

Amended claim 1 further recites:

(g) assigning quality and rate measures to each said candidate.

Support for this recital is found in Fig. 4 and in the specification at page 10, lines 6-8. Amended claim 8 contains a similar recital in apparatus format.

Applicants have been unable to find any disclosure in either Hoogenboom or Yoshioka of "assigning quality and rate measures to each said candidate".

Amended claim 1 further recites:

> (h)based on said assigned measures, choosing a particular one of the candidates to reduce said secondary memory accesses of said decoder.

Support for this recital is found in Fig. 4 and in the specification at page 10, line 21, to page 11, line 4. Amended claim 8 contains a similar recital in apparatus format.

Applicants have been unable to find any disclosure in either Hoogenboom or Yoshioka of this recital.

Amended claim 3 recites:

> (e) transmitting signals to and receiving second signals from a primary memory, which is dedicated for storage of some of previously used prediction data obtained from said external memory, and wherein said second signals retrieve selected prediction data from said previously decoded prediction data from said primary memory.

Support for this rectal is found in Figs. 3, 5 and 6 and the corresponding accompanying descriptions of the specification. See, e.g., page 9, lines 26-29.

As discussed above in connection with claims 1, 2 and 8, neither Hoogenboom nor Yoshioka discloses the primary memory dedicated to the storage of prediction data. The Examiner concedes that Hoogenboom does not disclose the primary memory, but

contends that Yoshioka does, citing Fig. 4, elements 3 and 4 and column 12, lines 8-33 and column 13, lines 11-30. However, these citations do not describe the recited primary memory, which is dedicated to storage of previously used prediction data. All that is described in Yoshioka is an internal FIFO for bit stream processing, which has nothing to do with motion compensation that is performed later in the decoding process. Thus, the combination of Hoogenboom and Yoshioka lacks the above quoted recital of amended claim 3.

Amended claim 3 further recites:

> (f) searching said primary memory for prediction data of a current data being decoded, wherein step (a) uses said prediction data in decoding.

Support for this rectal is found in Figs. 3, 5 and 6 and the corresponding accompanying descriptions of the specification. See, e.g., page 8, line 6, to page 9, line 3.

Since the combination of Hoogenboom and Yoshioka lacks the primary memory (see discussion of claims 1, 2 and 8), it also lacks searching the primary memory for prediction data of a current data being decoded.

For the above noted reasons, amended claim 3 is unobvious over the combination of Hoogenboom and Yoshioka.

Amended claims 4, 7 and 10 also recite the primary memory. The combination of Hoogenboom and Yoshioka lacks the primary memory (see discussion of claims 1-3 and 8).

Amended claims 4, 7 and 10 further recite:

> "wherein said motion compensation function searches said internal primary memory for a certain prediction data and, if not found, retrieves said certain

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prediction data from said external memory for storage in said internal primary memory".

Support for this rectal is found in Figs. 3, 5 and 6 and the corresponding accompanying descriptions of the specification. See, e.g., page 8, lines 18-22.

Applicants have been unable to find any disclosure of this rectal in either Hoogenboom or Yoshioka. Therefore, the combination of Hoogenboom and Yoshioka lacks this recital.

For the reasons set forth above, amended independent claims 1, 3, 6, 7 and 10 and dependent claim 6 are unobvious in view of the combination of Hoogenboom and Yoshioka.

For the reasons set forth above, it is submitted that the rejection of claims 1, 3, 4, 6, 7 and 10 under 35 U.S.C. 103(a) is obviated by the amendment and should be withdrawn.

The Office Action rejects claims 8 and 9 under 35 U.S.C 103(a) as unpatentable over U.S. Patent No. 5,576,767 to Lee et al., hereafter Lee, in view of Yoshioka.

Amended claim 8 recites an encoder that takes into account decoder memory structure (external and internal) while doing motion estimation and mode selection. The Examiner concedes that Lee does not disclose the primary memory model of the decoder memory as recited, but contends that Yoshioka does. However, this contention is mistaken as discussed in the above discussion of claim 8. Therefore, the combination of Lee and Yoshioka lacks the primary memory recited in amended independent claim 8 and dependent claim 9.

Moreover, there is no disclosure in either Hoogenboom or Lee of a motion estimator that searches said primary memory to find at least one candidate as match between a current block and the reference data.

Amended independent claim 8 further recites:

(f) a motion vector selector that is coupled to an output of the motion estimator and that chooses said candidate as a predictor of said current block accordingly; and

(g) a quality and rate controller that provides quality and rate measures for each candidate to the motion vector selector.

Support for this recital is in Fig. 4 and in the specification at page 10, lines 2-8.

Neither Hoogenboom nor Yoshioka discloses the combination of these two elements in which the quality and rate controller provides quality and rate measures to the motion vector selector.

For the reasons set forth above, it is submitted that the rejection of claims 8 and 9 under 35 U.S.C. 103(a) is obviated by the amendment and should be withdrawn.

Newly presented claims 11 and 13 depend from claims 1 and 8, respectively, and recite that the choosing step chooses the candidate if a difference between the current block and the candidate is less than a first quality and rate measure. Newly presented claims 12 and 14 claims depend from claims 11 and 13, respectively, and recite that if the candidate is greater than the first quality and rate measure, the finding step searches a second memory that stores prediction data without regard for the decoding process for other prediction data candidates from which the choosing step may choose. Neither of these features is disclosed or taught by Hoogenboom, Lee or Yoshioka. Accordingly, it is submitted that claims 11-14 distinguish from the cited art and are, therefore, allowable.
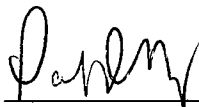
It is respectfully requested for the reasons set forth above that the rejections under 35 U.S.C. 102(b) and 35 U.S.C. 103(a) be withdrawn, that claims 1-4 and 6-14 be allowed and that this application be passed to issue.

For the reasons set forth above, it is submitted that this amendment places the application in condition for allowance. Accordingly, it is respectfully requested that this application be allowed and passed to issue. If this amendment is deemed to not place the application in condition for allowance, it is respectfully requested that it be entered for the purpose of appeal.

Respectfully Submitted,

Date: 3|5|0 9

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